DEPARTMENT OF TRANSPORTATION
DIVISION OF ENGINEERING SERVICES
Office of Structural Materials
Quality Assurance and Source Inspection

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Contract #: 04-0120F4
Cty: SF/ALA Rte: 80 PM: 13.2/13.9
File #: 69.28

WELDING INSPECTION REPORT

Resident Engineer: Pursell, Gary
Address: 333 Burma Road
City: Oakland, CA 94607

Report No: WIR-005031
Date Inspected: 04-Dec-2008

Project Name: SAS Superstructure
Prime Contractor: American Bridge/Fluor Enterprises, a JV
Contractor: Zhenhua Port Machinery Company, Ltd (ZPMC), Changxing Island

OSM Arrival Time: 630
OSM Departure Time: 1530
Location: Shanghai, China

CWI Name:	Geng Wei, Zhang Bao Wei			**CWI Present:**	☑ Yes	☐ No	
Inspected CWI report:	☐ Yes	☑ No	☐ N/A	**Rod Oven in Use:**	☑ Yes	☐ No	☐ N/A
Electrode to specification:	☑ Yes	☐ No	☐ N/A	**Weld Procedures Followed:**	☑ Yes	☐ No	☐ N/A
Qualified Welders:	☑ Yes	☐ No	☐ N/A	**Verified Joint Fit-up:**	☐ Yes	☑ No	☐ N/A
Approved Drawings:	☑ Yes	☐ No	☐ N/A	**Approved WPS:**	☑ Yes	☐ No	☐ N/A
				Delayed / Cancelled:	☐ Yes	☑ No	☐ N/A

Bridge No: 34-0006
Component: OBG Assembly

Summary of Items Observed:

This report serves to document the events occurring on this date at the following location. Caltrans Quality Assurance (QA) Inspector Robert Vatcher arrived on site at the Zhenhua Port Machinery Company (ZPMC) facility at Changxing Island, in Shanghai, China, for the purpose of monitoring welding and fabrication of the San Francisco / Oakland Bay Bridge (SFOBB) components. The QA Inspector observed the following:

OBG Assembly Bay II

5AE-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

5BE-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

5CE-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

3AE-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

3BE-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA performed Welding procedure specification verification at SEG016*-016 deck panels DP63A & DP64A. QA observed for this operation the FCAW process utilizing 1.4 mm diameter Supercored 71H E71T-1 electrode wire in DCEP mode which was checked out of the station on 11/28/08 at 0700. Hong Yong Li 044801 the qualified welding operator was observed as well utilizing a stringer bead method for this evolution in the initial root pass per the welding procedure specification WPS-B-T-223(2)1T. QA measured in-process temperature to be approximately 90 degrees Celsius average, amperage to be 285 (average), voltage at 29.0 and a travel speed of approximately 200 mm per minute. ZPMC QC personnel Chen Chih Ming was present to measure and record this operation.

4AE-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

4BE-

Lift Interior- No Observed Welding Activity

Lift Topside-

QA observed the in process joining of SEG020A*-005 deck plates (situated atop of the segment) DP77A & DP43A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator chen Xi Feng 052692. Measured amperage at 680.0. Voltage at 32.0, travel speed at 500 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Zhang Xian Ji was present for this welding evolution. ZPMC QC

personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

Mid bay-

Side panels for segment SEG08A-013 SP300A & SP197A have been fit up and tacked. QA performed a cursory visual examination of the bevel angle, root opening and associated tack welds performed at this location. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

QA observed the in process joining of SEG007A-014 side plates SP190B & SP645B by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Ming 048296. Qualified welding status was verified by the presence of certification card from the welders pocket. Measured amperage at 645.0, Voltage at 31.5, travel speed at 510 millimeters per minute. Preheat was measured at 90.0 degrees celsius. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Zhang Xian Ming was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

QA observed the in process joining of SEG007A-003 bottom plates BP199A & BP197A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Lanying 045265. Qualified welding status was verified by the presence of certification card from the welders pocket. Measured amperage at 585.0. Voltage at 32.0, travel speed at 480 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Zhang Xian Ming was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

QA observed the lifting & movement of SEG9A-001 side panels SP172A, SP173A & SP174A (combined panels) for 2BW by gantry crane. QA observed that the panels were stressed/ flexed in a direction parallel to the axis of the complete joint penetration welds. As well QA took digital video of this event and is available as necessary.

5CW-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

5BW-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

5AW-

Lift Interior- No Observed Welding Activity

Lift Topside- No Observed Welding Activity

4BW-

Lift Interior-

QA observed that multiple diaphragm plate to diaphragm plate joining operations have occurred and are occurring presently throughout the
west segment

Random minimum tack welds installed at diaphragm plate to floor beam flanges at panel point 27.

No tack welds installed at diaphragm plate to floor beam flanges at panel point 26.

Lift Topside-

Deck panels DP76A & DP75A, DP73A & DP39A complete joint penetration welds are completely filled out by the SAW process.

QA observed that deck panels DP76A & DP75A complete joint penetration welds are filled out by the FCAW process only in the top portion and require further filling by the SAW process. As well deck panels DP73A and DP39A require the same.

4AW-

Lift Interior- No Observed Welding Activity

Tack welds installed at diaphragm plate to floor beam flanges at panel point 25.

Lift Topside- No Observed Welding Activity

Deck panels DP27A & DP65A, DP68A & DP67A complete joint penetration welds are completely filled out by the SAW process.

QA observed that deck panels DP68A & DP67A complete joint penetration welds are entirely filled out in the top portion by the SAW process. As well deck panels DP27A and DP65A are in the same condition.

3BW-

Lift Interior- No Observed Welding Activity

Random minimum tack welds installed at diaphragm plate to floor beam flanges at panel point 23. Tack welds permanent installation at diaphragm plate to floor beam flanges at panel point 22.

Lift Topside-

Deck panels DP60A & DP59A, DP57A & DP15A complete joint penetration welds are completely filled out by the SAW process.

QA observed the in process joining of SEG015A-016 deck plates (situated atop of the segment) DP60A & DP59A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang Lanying 045265. Measured amperage at 620.0. Voltage at 34.4, travel speed at 500 mm per minute. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Huang Shuai was present for this welding evolution. ZPMC QC personnel Chen Chih Ming was available as well ensuring the 20C minimum preheat was established by way of a Fluke infrared temperature thermometer.

QA observed that deck panels DP57A & DP15A complete joint penetration welds are partially filled out by the SAW process and require approximately two more passes to be complete.

3AW-

Lift Interior- No Observed Welding Activity

Tack welds installed at diaphragm plate to floor beam flanges at panel point 21.

Lift Topside- No Observed Welding Activity

Deck panels DP52A & DP51A, DP49A & DP3A complete joint penetration welds are completely filled out by the SAW process.

North Bay of OBG Assembly-

QA observed the in process joining of SEG007A-014 bottom plates BP038A & BP092A by the SAW process. QA measured welding parameters in accordance with welding procedure specification WPS-B-T-2221-B-L2C-S-2 utilizing non corroded or detritus bearing 4.0 mm diameter H14 electrode wire by qualified welding operator Wang lan Ying 045265. Qualified welding status was verified by the presence of certification card from the welders pocket Measured amperage at 582.0, Voltage at 32.5, travel speed at 483 millimeters per minute. Preheat

was measured at 110.0 degrees celsius. Flux was reclaimed and strained through a large rare earth magnet and immediately reused. QA performed a cursory visual examination of the previously joined area prior to further depositing of weld metal. ZPMC QC personnel Zhang Xian Ming was present for this welding evolution. AB/F QC personnel li Hanjie was available as well. The above mentioned items as observed and documented by QA appears to be in conformance with the contract documents.

Side Plate to Side Plate back grinding in progress at SP124-001 to SP097-001. QA performed a cursory visual examination of the preparation to sound metal.

QA observed at SEG037A-009 side plates SP719A to SP4381A that ceramic backing has been installed to facilitate joining without requiring back gouging and back welding.

North Sub-Assembly Area (Outside of OBG)

No observed joining operations

Summary of Conversations:

No relevant conversations this date.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Peter Dautermann, who represents the Office of Structural Materials for your project.

Inspected By:	Vatcher,Robert	Quality Assurance Inspector
Reviewed By:	Cuellar,Robert	QA Reviewer